TANNOY
professional

Reveal X

User Manual

TANNOY®

professional

CONTENTS

1.0 Introduction

2.0 The Basics

- 2.1 Unpacking and visual checks
- 2.2 Preliminary recommendation
- 2.3 Connecting your speakers
- 2.4 Observing polarity
- 2.5 Power Amplifiers

3.0 Installing & Positioning

- 3.1 5.1 Surround Monitoring
- 3.2 Bass Ports
- 3.3 Equalisation

4.0 Reveal X Dimensions

5.0 Performance Data

6.0 Technical Specifications

7.0 Servicing

- 7.1 Cabinet finish
- 7.2 Driver removal
- 7.3 Crossover
- 7.4 List of spare parts

8.0 WARRANTY

9.0 Declaration of Conformity

1.0 INTRODUCTION

Thank you for purchasing the Tannoy Reveal X Monitor.

Primarily designed as a centre channel to compliment the Reveal or Reveal Active Monitors in a 5.1 studio set-up, it is equally suited as a main left, right Monitor.

The design compatibility within the Reveal range ensures all models share the same acoustical balance and dispersion characteristics. During mixing and playback this benefit provides a very natural soundstage retaining natural voicing and ensuring that aural effects and speech localisation 'pan' from left to right and front to rear seamlessly.

The 5.1 format allows the mix engineer in the recording studio to assign audio information to one or more discreet channels of playback; providing very vivid and exacting localisation for the apparent sound sources in the listening environment.

The Reveal X is fully magnetically shielded, permitting use in close proximity to TV monitors without colour-fringing effects.

This manual is intended to provide the user with some useful advice on how to install and use the loudspeaker, as well as more technical information about how the system is designed, and its detailed specifications. The goal being that it will help you get the best results, from this monitoring system.

2.0 THE BASICS

The Reveal X from Tannoy, a company with unrivalled experience in studio monitoring. It has an extremely detailed, dynamic sound with a wide, flat frequency response – all of which are essential for monitoring with reliable accuracy.

The 25mm (1") soft dome HF unit is seamlessly matched to two 165mm (6.5") long throw bass units by the precision low-loss crossover network. The drive units are mounted on a massive 40mm thick baffle, curved to minimise diffraction and creating the loudspeakers distinctive styling. The drive units are magnetically shielded as well as the enclosure using heavy gauge steel plates to allow the system to be used close to video monitors.

2.1 Unpacking and visual checks

To remove the speakers from the carton without damage open the end flaps fully and bend them right back. Turn the package upside-down on the floor and lift the carton vertically up to leave the speakers resting on their packing tray. Nothing on or in your speakers should rattle about. Inspect each speaker for signs of transit damage. In the unlikely event of this having occurred inform the carrier and the supplier. Keep all the packaging if damage has occurred, as this will show evidence of excessive handling forces. It is also a good idea to keep the carton if possible for future transportation.

2.2 Preliminary recommendation

Initially we would like to give a word of warning on high sound levels, which this speaker is capable of generating over sustained periods of time. Levels over 95 dB for 8 hours per day will eventually cause permanent hearing loss. Because Tannoy monitors have very low levels of time, amplitude and frequency distortion it is not always obvious that the sound level is high while working with them.

For continuous exposure we recommend the occasional use of a sound level meter capable of integrating the sound level over a period of exposure according to noise control standards. This should be used just to check that noise levels are always within safety limits.

2.3 Connecting your speaker

The types of cable used to connect the speakers to the power amplifier will marginally affect the sound. The cross-sectional area of the cable should be large enough so as not to affect the damping factor, generally a cable with a cross-sectional area of 2.5 mm^2, or greater is recommended.

The lower the resistance of the cable between the amplifier and the speakers, the better the damping factor acting on the speaker. This has been covered in every audio magazine that has ever been written about speakers, so we won't beat it to death here. You don't need to buy speaker wire that costs as much as your speakers to get some benefit from wire size, select a finely stranded speaker cable, and dress the cable ends to prevent "hairs" or stray conductors from shorting across the terminals. If your amplifier will not directly accept that size of cable, you can trim down the cable size at the amplifier end. Ensure that the binding post retaining nuts are screwed down firmly without stripping or over tightening them.

2.4 Observing polarity

You already know about connecting the positive terminal on the amplifier to the positive terminal on the speakers, and ensuring that both channels are "in phase" by checking to ensure that there's more bass with both speakers on and not less bass. Absolute polarity is a bit trickier to confirm. Absolute polarity is the maintenance of a positive pressure wave from the microphone capsule to the listening room. A kick drum, for instance, has the drum skin whacked by the foot pedal, and it pushes the air, which pushes the microphone diaphragm, which goes through the electronics and should eventually come out of the speakers as a positive pressure wave, which should have the speaker cones moving towards you, just like the drum skin. It turns out that you can't trust a conventional recorded source to test this because there is no way to confirm that absolute polarity was maintained, it can even change from track to track. This isn't a trivial thing, especially when you're using a true stereo microphone setup, or trying to accurately place things in your mix. This is something that should be rigorously checked with every microphone and every signal line in a studio, but the first step would be to use the kickdrum test described above with a few microphones. If you don't believe it can make a difference, set up a little test using a mix you know and flip the polarity of both channels at the same time, while listening to the same program...imaging, vague imaging, imaging, vague imaging. Believe it.

2.5 Power Amplifiers

The power amplifier should be reasonably well matched in power to the power rating of the speakers (see specifications). The use of a powerful amplifier (i.e. in excess of the recommended figure) provides headroom, which is useful especially for highly dynamic programme materials.

Due of the high peak power handling of Tannoy monitors, responsible use of even more powerful amplifiers should not represent a danger to the speakers if the amplifiers are not overdriven.

3.0 Installing and Positioning

When choosing a suitable location for the monitors, bear in mind that the physical mounting of loudspeakers can have a large influence on performance. For best results the monitors should be mounted on a rigid structure, supported on four pads making contacts with the laminated panel. The use of soft pads (rubber, Sorbothane, or Blu-Tak) is recommended.

Ensure that the console position does not obscure the direct sound radiation from the loudspeakers when sitting down. The engineer and producer should have a clear, uninterrupted view of the monitor loudspeakers.

3.1 (5.1 Surround Monitoring)

In order to ensure a uniform acoustical environment, the room should be symmetrical about the centre loudspeaker axis; room treatments should be applied symmetrically throughout the room. Mixed “Live end/Dead end” environments should be avoided. If the lateral speakers are positioned close to walls then the constitution of the wall surfaces should be identical.

As the main effects speaker for the front soundstage, the Reveal X’s placement is a critical factor in its performance. In all cases the centre channel speaker should be placed as close to the TV screen as possible. The viewing position when seated determines the ideal mounting height, but in all cases this should be as close as possible to ear height, if this is not possible the monitor should be tilted towards ear height in the mix position. The centre speaker should be positioned along the centre axis of the picture and the left/right monitors just outside the picture, ideally the three front effects speakers would be placed with the front baffles in line with the screen surface. If an acoustically transparent screen is used, the left/right monitors should be placed just inside the edges of the picture. The surround speakers should be positioned at the same distance to the mix position as the main front speakers. As the subwoofer/LFE channel only produces low frequencies it is difficult to localise its position by ear. As a result it could effectively be situated anywhere in the room, though optimum performance will be gained by placing the subwoofer in the same plane as the main front speakers. The LFE channel is set at a level 10dB higher than the other channels when mixing therefore it is important to apply the same in any playback situation.

3.2 Bass Ports

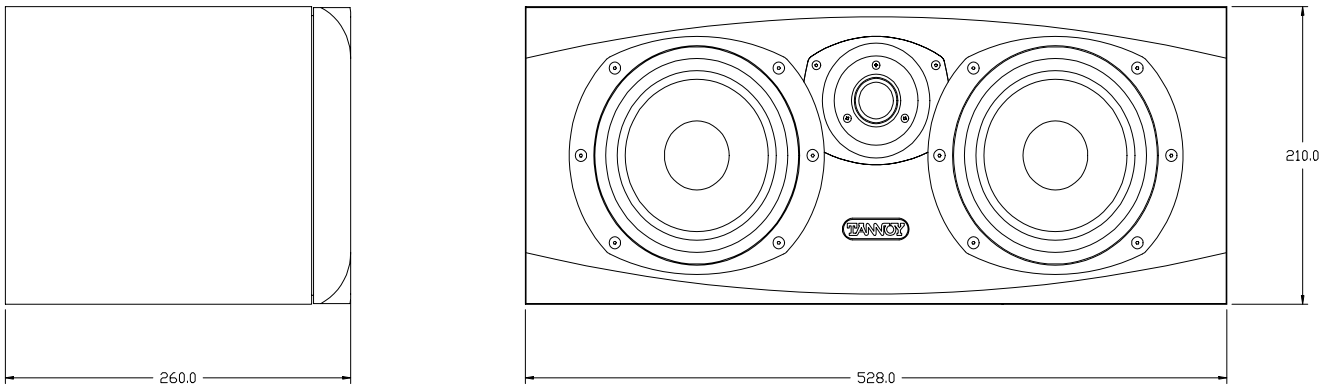
The Reveal X monitors’ bass ports are located on the back panel. You should keep the back panels at least 150mm (6”) away from the nearest wall surface to avoid an overblown bass sound. If you cannot avoid being close to the wall you may want to consider plugging the port tubes on your loudspeaker with a closed cell foam-rubber plug, friction fit for a full seal.

3.3 Equalisation

Our feeling is that you shouldn’t equalize monitors at all; variations in the monitor response should be fixed through placement. But we realize that equalization is sometimes a necessary evil. If you have a choice of equalizers for monitor applications, less is more. The fewer the number of filters, the better the equalizer will sound. A stereo five band parametric is better than a stereo 15 band that is better than a stereo 1/3 octave. You may not realise that in all but one or two brands of 1/3-octave equalizers, all 30 filters are in series. There is a minimum transit time through each filter of some 25 microseconds, plus just a bit of decay time for each filter. Even with the equalizer set flat, it does not behave like a straight piece of wire in the time domain. If you don’t need to equalize your monitors, then don’t hook an equalizer up to them at all.

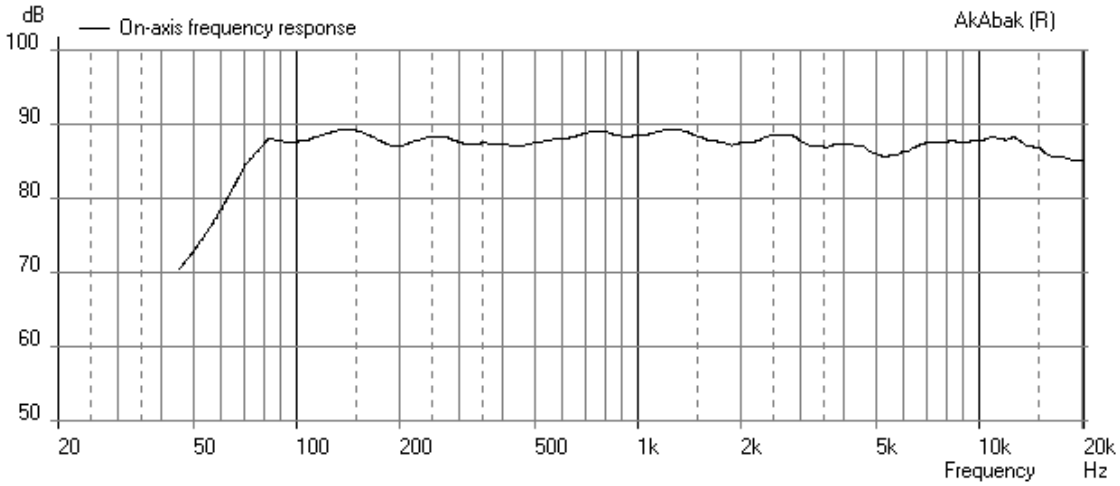
A subtle bit of reduction in the mid bass where the console or table top will give you a rise, perhaps a bit of tailoring to taste here or there. As a general rule for this application, you should never need more than 6dB of control range, and you should never see two adjacent filters with more than 6dB of difference between them. Over equalization can reduce system headroom, and introduce phase distortion resulting in greater problems than cures.

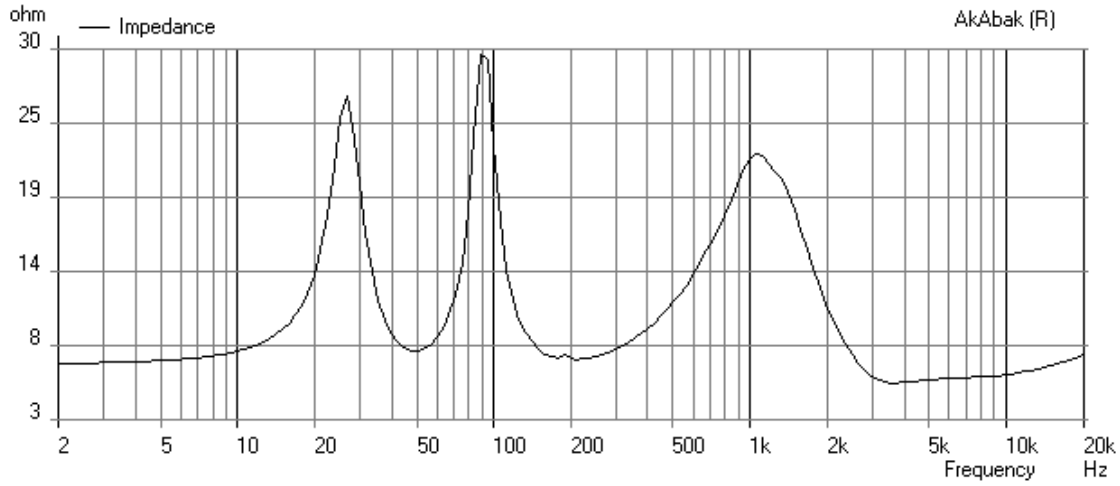
4.0 Reveal X Dimensions



Dimensions in mm

5.0 PERFORMANCE DATA





6.0 TECHNICAL SPECIFICATIONS

Loudspeaker

Frequency response (1)	65 Hz - 20 kHz
Recommended amplifier power	60 to 150 W rms into 8 Ω
Power handling	Average (2) 75 W rms Programme 150 W rms
Nominal Impedance	8 Ω
Sensitivity (3)	90 dB SPL / 2.83v @ 1 m
Distortion	< 0.8%
Crossover frequency	2.7 kHz

Cabinet

Drive units	2 x Tannoy shielded 6.5” bass driver (1690) Tannoy shielded 1” soft dome tweeter (1205)
Low frequency design	Optimised bass-reflex load, in 19 litres
Cabinet construction	40mm MDF front baffle, 16 mm high-density particle board. Internal Steel plate for magnetic shielding.
Cabinet finish	Red satin finish front Grey suedette vinyl sides and back
Cabinet dimensions (HxWxD)	210mm x 528mm x 270mm
Cabinet weight	12.1 kg
Shipping dimensions (HxWxD)	300mm x 630mm x 343mm
Shipping weight	13.3 kg

NOTES : (1) +/- 3 dB , measured at 1m in an anechoic chamber.
(2) Long term power handling capacity as defined in EIA standard RS426A.
(3) Averaged over specified bandwidth for half-space environment. For anechoic conditions the figure is to be decreased by 3 dB.

Tannoy operates a policy of continuous research and development. The introduction of new materials or manufacturing methods will always equal or exceed the published specifications which Tannoy reserve the right to alter without prior notice. Please verify the latest specifications when dealing with critical applications.

7.0 SERVICING

6.1 Cabinet finish

To remove marks and scuffs use a soft brush. If necessary, a little warm water and detergent can be used but under no circumstances use a solvent or abrasive cleaner.

6.2 Driver removal

Lay the cabinet on its back. Remove the six hexagonal screws and set aside. Ease the driver from the front of the cabinet taking care not to mark the front surface. Remove the driver, note the polarity of the internal connections and disconnect the internal wiring. Take care not to damage the moving parts of the LF driver. To refit the driver, connect the cables from the crossover to the LF terminals. Fit the driver into the mounting hole, making sure that the internal connecting cables are not trapped or able to touch the LF cone. Fasten the screws finger tight and then progressively tighten them down with the appropriate Allen key.

Repeat the same procedure for the HF driver.

6.3 Crossover

The crossover is mounted on the rear of the terminal panel. To inspect it, remove the panel by releasing the hexagonal screws. Take care to avoid undue stress on the cables and components.

To remove the crossover completely the cables must be disconnected from the drive unit. Please proceed as above to remove the drive unit.

6.4 List of spare parts.

PART NUMBER	DESCRIPTION
9900 0529	Cabinet assembly – Reveal X
7900 0495	Driver kit – LF – type 1690
7900 0457	HF unit – type1205
7300 0796	Crossover assembly & termination panel

8.0 WARRANTY

No maintenance of the Reveal X monitor is necessary.
All components are guaranteed for a period of five years from the date of manufacture, subject to the absence of, or evidence of, misuse, overload or accidental damage.
For further information please contact your dealer or the distributor in your country.
If you cannot locate your distributor please contact:

Customer Services
Tannoy Ltd
Coatbridge, Strathclyde
ML5 4TF

Telephone 01236 420199 (UK) +44 1236 420199 (International)
Fax 01236 428230 (UK) +44 1236 428230 (International)
Internet: http://www.tannoy.com

DO NOT SHIP ANY PRODUCT TO TANNOY WITHOUT PREVIOUS AUTHORISATION.

This warranty in no way affects your statutory rights.

professional

Declaration of Conformity

The following apparatus is/are manufactured in the United Kingdom by Tannoy Ltd of Rosehall Industrial estate, Coatbridge, Scotland, ML5 4TF and conform(s) to the protection requirements of the European Electromagnetic Compatibility Standards and Directives relevant to Domestic Electrical Equipment. The apparatus is designed and constructed such that electromagnetic disturbances generated do not exceed levels allowing radio and telecommunications equipment and other apparatus to operate as intended, and, the apparatus has an adequate level of intrinsic immunity to electromagnetic disturbance to enable operation as specified and intended.

Details of the Apparatus:	Tannoy Monitor Loudspeaker Model Number: Reveal X
Associated Technical File:	EMCReveal X
Applicable Standards:	EN 50081-1 Emission EN 50082-1 Immunity

Signed:

Position:	Engineering Director Tannoy Professional
Date:	10th October 2001

For Tannoy Ltd

professional

Tannoy Loudspeakers are manufactured in Great Britain by :

Tannoy Limited, Coatbridge, ML5 4TF. SCOTLAND
Telephone: +44 (0)1236 420199 Fax: +44 (0)1236 428230
Internet:http://www.tannoy.com
Tannoy North America, 335 Gage Avenue, Suite1, Kitchener, Ontario, CANADA, N2M 5E1
Telephone: (519) 745 1158 Fax: (519) 745 2364

Tannoy Nederland BV, Anthonetta Kuijlstraat 19, 3066 GS, Rotterdam THE NETHERLANDS
Telephone: (010) 2860554 Fax: (010) 2860431

GH 10oct 2001